

## Research Note

# Gastrointestinal Helminths of the Lizard, *Sceloporus malachiticus* (Sauria: Iguanidae) from Costa Rica

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**ABSTRACT:** Three species of nematodes were recovered from the gastrointestinal tracts of 9 of 41 (22%) *Sceloporus malachiticus* from Costa Rica: *Spauligodon oxkutzcabiensis* (prevalence 7%, mean intensity 25); third-stage *Ascarops* sp. (prevalence 20%, mean intensity 7); and third-stage *Physaloptera* sp. (prevalence 2%, mean intensity 13). All are new host records.

**KEY WORDS:** Nematoda, *Spauligodon oxkutzcabiensis*, *Ascarops* sp., *Physaloptera* sp., Iguanidae, *Sceloporus malachiticus*, prevalence, intensity, Costa Rica.

*Sceloporus malachiticus* Sumichrast, 1882, is a medium-sized iguanid lizard that occurs from Guatemala to Panama in relatively mountainous regions from about 600 to 3,600 m (Villa et al., 1988). To our knowledge, there are no helminthological surveys of this species. The purpose of this paper is to present data from a survey of helminths from a population of *S. malachiticus* from Costa Rica.

The specimens utilized for this study are from a collection first used by Marion and Sexton (1971) for a study of the reproductive cycle of *Sceloporus malachiticus* and were collected January–December 1968 within a 50-km radius of San José, Costa Rica (9°50'N, 84°05'W) in the provinces of San José, Cartago, Alajuela, and Heredia at elevations 800–3,200 m. The 2 major collecting regions were San Ramon de Tres Ríos and Volcán Irazú. Tres Ríos is a pre-montane wet forest at about 1,100 m elevation, whereas Volcán Irazú is a montane wet forest at 2,400–3,000 m elevation. San José is at about 1,160 m elevation. Forty-one of these specimens (mean snout–vent length  $74.2 \pm 1.0$  mm SE, range 59–85 mm) were examined for helminths. The body cavity was opened by a longitudinal incision from vent to throat and the gastrointestinal tract was excised by cutting across the anterior esophagus and the rectum. The esophagus, stomach, small intestine and large intestine were examined separately. Each helminth was identified utilizing a glycerol wet mount. Selected intact specimens were placed in vials of alcohol and deposited in

the USNM Helminthological Collection, USDA, Beltsville, Maryland 20705: *Spauligodon oxkutzcabiensis* (81860), *Ascarops* sp. (81861), and *Physaloptera* sp. (81862).

Nematodes (Table 1) were recovered from 9 of 41 *Sceloporus malachiticus* examined (prevalence 22%). *Spauligodon oxkutzcabiensis* (Chitwood, 1938) was recovered from the fecal material within the large intestine (prevalence 7%, mean intensity 25), third-stage larvae of *Physaloptera* Rudolphi, 1819, from the stomach lumen (prevalence 2%, intensity 13), and larvae of *Ascarops* Beneden, 1873, from cysts within stomach musculature (prevalence 20%, mean intensity 7). Each of the 3 lizards infected with *Spauligodon oxkutzcabiensis* had concurrent infection of *Ascarops* sp. All represent new host records.

Seventy-five (2 male, 73 female) nematodes matching the description of and within the range of measurements for *S. oxkutzcabiensis* as reported by Chitwood (1938) were recovered from the large intestine of 3 (1 female, 2 male) *S. malachiticus* collected at San José. The 2 male specimens were 1.8 and 2.0 mm long and 160 and 165  $\mu$ m wide, respectively. The cloacal orifice was prominent; the caudal alae did not enclose the postanal papillae. The esophagus was 270  $\mu$ m long; the excretory pore was opposite the esophageal–intestinal junction. Gravid female specimens were 3.0–5.3 mm long by 200–350  $\mu$ m wide. The esophagus was 410–430  $\mu$ m in length. The excretory pore was located 25–50  $\mu$ m posterior to the esophageal–intestinal junction. The vulva was 25–50  $\mu$ m posterior to the excretory pore. The tail had 11 to 15 spines. The elongated, ellipsoidal eggs measured  $36 \times 120$   $\mu$ m and had small terminal knobs at each end. *Spauligodon* (= *Pharyngodon*) *oxkutzcabiensis* was first described in the gecko, *Thecadactylus rapicaudus*, from Yucatan, Mexico by Chitwood (1938) and has not since been reported until now. Of the 23 species of *Spauligodon* so far described, 8 are

**Table 1. Prevalence of nematodes in *Sceloporus malachiticus* by date of capture and location.**

Nematode	Apr Volcán Irazú	Oct–Nov Tres Ríos	Dec Volcán Irazú	Dec San José	Total
<i>Spauligodon oxkutzcabensis</i>	0% (0/10)	0% (0/12)	0% (0/12)	43% (3/7)	7% (3/41)
Spirurid larvae ( <i>Ascarops</i> sp.)	0% (0/10)	8% (1/12)	8% (1/12)	86% (6/7)	20% (8/41)
Third-stage <i>Physaloptera</i> sp.	10% (1/10)	0% (0/12)	0% (0/12)	0% (0/7)	2% (1/41)

from the western hemisphere, and with 1 exception (Baylis, 1923), the species have been recovered only from lizards. In the western hemisphere they have been found as parasites of the large intestine of gekkonid, iguanid, and teiid lizards although they may occasionally spill over into the small intestine (Goldberg and Bursey, 1990). Pearce and Tanner (1973) considered the effects of *Spauligodon giganticus* on its host to be negligible and to be more a commensal than a parasite. Although we report a prevalence of 7% for *S. oxkutzcabensis* in *S. malachiticus*, had we examined only the population from San José, prevalence would have been much different as it was absent from the Tres Ríos and Volcán Irazú samples (Table 1).

Fifty-six third-stage spirurid larvae, which we identify as *Ascarops* sp., were recovered from cysts within stomach musculature of 8 (4 male, 4 female) *S. malachiticus*. The distinguishing differential features of the third-stage larvae of *Ascarops* sp. and seen in our specimens are (1) the right and left anterolateral body wall is prolonged into liplike projections, and (2) the tip of the tail possesses a smooth knoblike process. Goldberg and Bursey (1989) listed paratenic hosts of *Ascarops* sp. within the United States.

Thirteen third-stage physalopterid larvae, which we identify as *Physaloptera* sp., were recovered from the stomach of 1 female *S. malachiticus*. There are 4 genera of the family Physalopteridae reported from the western hemisphere: *Physaloptera*, *Abbreviata*, *Skrjabinoptera*, and *Thubunaea*. To identify larval forms is always difficult, but we have based identification of our specimens on the presence of a collarette, symmetrical lips, triangular teeth, and finely striated cuticle. We consider *Abbreviata* to have asymmetrical lips, *Skrjabinoptera* to lack a finely striated cuticle, and *Thubunaea* to lack a collarette. Baker (1987) listed the records of oc-

currence for species of *Physaloptera*, *Abbreviata*, *Skrjabinoptera*, and *Thubunaea*. Considering their occurrences in western hemisphere lizards, of the 57 species of *Abbreviata* currently recognized, only *A. baracoa* is known from the western hemisphere where it occurs in snakes and toads but no lizards. Two of the 8 species of *Skrjabinoptera*, 4 of 16 *Thubunaea* species, and 4 of 15 *Physaloptera* species have been reported from lizards in the western hemisphere.

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